IN THE CLAIMS

Please amend the Claims as follows:

1. (Original) A powered boatlift comprising:

a plurality of support legs;

a boat lifting structure moveably mounted to said plurality of support legs;

a cable assembly having a connecting end and a lifting end connected in cooperation with said boat lifting structure for causing said boat lifting structure to be raised or lowered;

an electric drive unit having a drive shaft capable of rotating in a first direction in response to a first input signal or rotating in a second direction in response to a second input signal;

a drive coupling structure coupled to said drive shaft;

a ball screw assembly having a first portion coupled to said coupling structure and a second portion coupled to said connecting end.

2. (Original) A powered boatlift as in Claim 1, wherein

said first portion of said ball screw assembly includes an elongated ball screw having a driving end coupled to said coupling structure wherein said coupling structure rotatably supports said driving end; and

said second portion of said ball screw assembly includes a ball nut associated with said elongated ball screw, said ball screw having a cable connection coupled to said connecting end of said cable assembly.

3. (Original) A powered boatlift as in Claim 2, wherein said drive coupling structure includes:

a drive train assembly having

an input drive coupled to said drive shaft for receiving high-speed low-torque input from said electric drive unit;

a torque conversion mechanism coupled to said input drive for converting said high-speed low-torque input to a low-speed high-torque output at an output drive; and

an output coupling intermediate said output drive of said torque conversion mechanism and said driving end of said elongated ball screw.

4. (Original) A powered boatlift as in Claim 3, wherein said torque conversion mechanism includes:

a speed-reducing structure driven by said input drive and having an output drive shaft; and

a torque-increasing structure driven by said output drive shaft and coupled to said output coupling.

5. (Original) A powered boatlift as in Claim 4, wherein

said speed-reducing structure is a pulley assembly and is belt driven; and

said torque-increasing structure is a gear assembly and is chain driven.

6. (Original) A powered boatlift as in Claim 3, wherein said torque conversion mechanism includes:

a first drive pulley having a first predetermined diameter coupled to said input drive;

a pulley drive shaft having a driven end and a driving end;

a second drive pulley having a second predetermined diameter larger than said first predetermined diameter, said second drive pulley rotatably supported by said pulley drive shaft at said driven end;

a belt intercoupling said first drive pulley and said second drive pulley;

a first drive gear having a third predetermined diameter mounted on said driving end of said pulley drive shaft;

a gear drive shaft having a driven end and a driving end;

a second drive gear having a fourth predetermined diameter larger than said third predetermined diameter, said first drive gear rotatably supported by said gear drive shaft at said driven end;

a chain intercoupling said first drive gear and said second drive gear; and

an output coupling intercoupling said driving end of said gear drive shaft and said driving end of said elongated ball screw.

7. (Original) A boatlift structure as in Claim 6, wherein

a first ratio of said first predetermined diameter to said second predetermined diameter establishes a predetermined speed reduction at said pulley drive shaft; and

a second ratio of said third predetermined diameter to said fourth predetermined diameter establishes a predetermined torque increase at said output coupling.

8. (Original) A powered boatlift structure as in Claim 3, and further including a lift movement limiting mechanism comprising:

a lift measuring mechanism capable of determining the extent of upward and downward movement of said lifting structure;

a first disabling structure coupled to said lift measuring mechanism to disable power to said electric drive unit when said lift measuring mechanism determines that a predetermined permissible upward movement of said lifting structure has been achieved; and

a second disabling structure coupled to said lift measuring mechanism to disable power to said electric drive unit when said lift measuring mechanism determines that a predetermined permissible downward movement of said lifting structure has been achieved.

9. (Original) A powered boatlift structure as in Claim 3, wherein said electric drive unit includes:

a reversible electric motor; and

a control circuit coupled to said electric motor to selectively control the direction of rotation or said electric motor in response to said first signal and said second signal.

10. (Original) A powered boatlift structure as in Claim 9, wherein said control circuit includes:

a load limit detecting circuit to provide a disabling signal to disable application of power to said reversible electric motor when electrical current flow to said reversible electric motor is detected to be in excess of a predetermined permissible level.

11. (Original) A power boatlift structure as in Claim 10, and further including:

a manual reset actuator coupled to said control circuit to enable operation of said control circuit after a said disabling signal has been provided by said load circuit detecting circuit.

12. (Original) A powered boatlift structure as in Claim 9, wherein said control circuit includes:

a first manually operable switch to provide said first signal to apply electrical circuit to said reversible electric motor to cause rotation in a first direction; and

a second manually operable switch to provide said second signal to apply electrical current to said reversible electric motor to cause rotation in a second direction.

13. (Original) A powered boatlift structure as in Claim 9, wherein said control circuit includes a

receiver circuit responsive to a first remote signal to provide said first signal to apply electrical current to said reversible electric motor to cause rotation in a first direction; and responsive to a second remote signal to provide said second signal to apply electrical current to said reversible electric motor to cause rotation in a second direction.

14. (Original) A powered boatlift structure as in Claim 9, wherein said control circuit includes:

a first switch to provide said first signal;

a second switch to provide said second signal;

a receiver responsive to a first remote signal to protect said first signal and responsive to a second remote signal to provide said second signal.

15. (Original) A powered boatlift structure as in Claim 9, wherein said control circuit includes:

a reversal delay circuit to delay application of said first signal or said second signal by a predetermined delay time interval to delay reversal of rotation of said reversible electric motor.

16. (Original) A powered boatlift structure as in Claim 1, and further including:

a brake mechanism for holding said boat lifting structure in place when said electric device unit does not have electrical current applied.

17. (Original0 A powered boatlift structure as in Claim 1, wherein one or more of said plurality of support legs includes a boatlift leveling mechanism.

18. (Original) A powered boatlift structure as in Claim 17, wherein said boatlift leveling mechanism includes:

a footpad;

a height adjustment mechanism for use in colinear alignment with an associated boatlift leg and having a first end portion coupled to said footpad and having a second end portion; and

a height adjustment actuator accessible along an associated one of said plurality of boatlift legs and coupled to said second end portion at a predetermined angle with respect to said alignment,

whereby the relationship of said footpad with respect to an associated one of said plurality boatlift legs can be controlled.

19. (Original) A boatlift leveling mechanism as in Claim 18, wherein said height adjustment mechanism includes:

a leg extension member having said first end portion and said second end portion ;

a height adjusting screw mechanism in cooperation with said leg extension member, said height adjusting screw mechanism including an elongated screw having an activating end and having a screw nut coupled to said leg extension member; and

an affixed bevel gear coupled to said activating end,

whereby said leg extension member is caused to move with respect to an associated boatlift leg when said height adjusting screw mechanism is activated by rotation of said affixed bevel gear.

20. (Original) A boatlift leveling mechanism as in Claim 19, wherein said height adjustment mechanism further includes:

a height adjustment actuator having a mating bevel gear in cooperation with said affixed bevel gear and having a height adjustment actuator for causing said mating bevel gear to impart rotational movement to said affixed bevel gear,

whereby said screw is caused to rotate and move said screw nut long the length of said screw.

21. (Amended) For use with a boatlift having at least one boatlift leg, a boatlift leveling mechanism comprising:

a footpad;

a height adjustment mechanism for use in colinear alignment with an associated boatlift leg and having a first end portion coupled to said footpad and having a second end portion; and

a height adjustment actuator accessible along ~~an~~ said associated boatlift leg and coupled to said second end portion at a predetermined angle with respect to said alignment,

whereby the relationship of said footpad with respect to ~~an~~ said associated boatlift leg can be controlled.

22. (Original) A boatlift leveling mechanism as in Claim 21, wherein said height adjustment mechanism includes:

a leg extension member having said first end portion and said second end portion ;

a height adjusting screw mechanism in cooperation with said leg extension member, said height adjusting screw mechanism including an elongated screw having an activating end and having a screw nut coupled to said leg extension member; and

an affixed bevel gear coupled to said activating end,

whereby said leg extension member is caused to move with respect to an associated boatlift leg when said screw mechanism is activated by rotation of said affixed bevel gear.

23. (Original) A boatlift leveling mechanism as in Claim 22 wherein said leg extension member further comprises:

an elongate structure having a predetermined length longer than the length of said screw mechanism, said elongated structure capable of slidable engagement with at least a portion of an associated boatlift leg, and said elongated structure having a predetermined tubular cross-section, wherein said screw mechanism is positioned within at least a portion of the tubular opening.

24. (Original) A boatlift leveling mechanism as in Claim 22, wherein said height adjustment mechanism further includes:

a height adjustment actuator having a mating bevel gear in cooperation with said affixed bevel gear and having a height adjustment actuator for causing said mating bevel gear to impart rotational movement to said affixed bevel gear,

whereby said screw is caused to rotate and move said screw nut long the length of said screw.

25. (Original) A boatlift leveling mechanism as in Claim 24, wherein said height adjustment actuator further includes:

a shaped head that is accessible along a boatlift leg; and

a shaft having a first shaft end coupled to said shaped head and a second shaft end coupled to said mating bevel gear,

whereby said leg extension member is caused to be moved in a first direction when said mating bevel gear is rotated in a first direction and in a second direction when said mating bevel gear is rotated in a second direction be selective activation of rotation of said shaped head in a first rotation direction or in a second rotation direction, respectively.

26. (Original) A boatlift leveling mechanism as in Claim 25, wherein said shaft is oriented substantially perpendicular to said elongated screw.

27. (Original) A boatlift leveling mechanism as in Claim 25 and further including:

a bracket having a first structure to hold said mating bevel gear in a rotatable cooperative relation with said affixed bevel gear and having a second structure for coupling said bracket to a boatlift leg.

28. (Original) For use in a boatlift having at least one boatlift leg, a boatlift leveling mechanism comprising:

footpad means for supporting an associated boatlift leg on a surface;

height adjustment means for linearly altering the spacing of said footpad means with respect to the end of an associated boatlift leg; and

height adjustment actuator means for selectively activating said height adjustment means, said height adjustment actuator means positioned for accessibility along the length of an associated boatlift leg.

29. (Original) A boatlift leveling mechanism as in Claim 28, wherein said height actuator means includes:

driving means coupled to said height adjustment means for linearly increasing said spacing when rotated in a first direction and for linearly decreasing said spacing when rotated in a second direction;

shaft means coupled to said driving means for rotating said driving means; and

head means coupled to said shaft means for imparting rotation thereto, said head means for receiving activating force to cause said driving means to be rotated in either said first direction or in said second direction.

30. (Original) A boatlift leveling mechanism as in Claim 29 and further including:

mounting means for coupling said height actuator means to said height adjustment means.

31. (Original) A boatlift leveling mechanism as in Claim 30 wherein said mounting means includes:

first structural means for positioning said shaft means at a predetermined angle in the order of about 90 degrees with respect to said height adjustment means; and

second structural means for affixing said height actuator means to an associated boatlift leg.

32. (Original) A powered boatlift comprising:

boat lifting means for supporting a boat;

cable means for leveling said boat lifting means and maintaining said both lifting means level during raising;

a plurality of leg means for supporting said cable means;

winch cable means for raising and lowering said boat lifting means;

electric drive means for driving a drive shaft in a first direction in response to a first input signal and for driving said drive shaft in a second direction in response to a second input signal;

drive train means coupled to said electric drive means for converting high-speed low-torque rotation input of said drive shaft to low-speed high-torque rotation output;

linear driving means coupled to said drive train means for controlling said winch cable means to effect control of said raising and lowering of said boat lifting means; and

one or more boatlift leveling means, each coupled to an associated one of said plurality of leg means, for leveling the boatlift.

33. (Original) A powered boatlift as in Claim 32, wherein said boatlift leveling means includes

height adjusting means accessible along the length of an associated one of said plurality of leg means for adjusting the height of said associated leg.

34. (Original) A powered boatlift as in Claim 32, wherein said electric drive means includes

input means for coupling to a source of electrical power; and

switch means for applying said first signal and said signal.

35. (Original) A powered boatlift as in Claim 34, wherein said switch means includes

manual switch means for applying said first signal and said second signal directly to said electric drive means; and

remote switch means for remotely applying said first signal and said second signal to said electric drive means without physical connection.

36. (Original) A powered boatlift as in Claim 33, and further including

load limiting means for sensing load current and disabling said electric drive means when the sensed load current exceeds a predetermined level.

37. (Original) A powered boatlift as in Claim 33, and further including

delay means for delaying application of either said first signal or said second signal that would cause a change of direction of movement of said boat lifting means, by a predetermined time interval sufficient to allow said boat lifting means to come to a stop before reversing direction.

38. (Original) For use with a power boatlift having a lifting structure including a ball screw mechanism and a winch cable for raising and lowering a lifting structure, a drive unit comprising:

electric drive means for providing power to the lifting structure for causing raising and lowering of the lifting structure by controlling the direction of rotation of the ball screw mechanism, said drive motor means including power input means for connecting to a source of electrical power;

switch means for applying direction control signals to said electric drive means; and

logic means responsively coupled to said control signals for controlling the operation of said electric drive means to control the raising or lowering of the lifting structure.

39. (Original) A drive unit as in Claim 38, wherein said switch means includes:

manual switch means for applying to said electric drive means a first direction control signal indicative of raising and a second direction control signal indicative of lowering; and

remote switch means for remotely applying said first direction control signal and said second direction control signal without physical connection.

40. (Original) A drive unit as in Claim 38, wherein said logic means includes:

light switching means for selecting operation of one or more auxiliary lights; and

light actuating means responsively coupled to said light switching means for applying power to said one or more auxiliary lights.

41. (Original) A drive unit as in Claim 40, wherein said light actuating means includes:

timing means for removing power to said one or more auxiliary lights after a predetermined time has elapsed.

42. (Original) A drive unit as in Claim 38, wherein said logic means includes:

conflict detection means for detecting concurrent conflicting ones of said direction control signals and inhibiting application of said conflicting direction control signals to said electric drive means.

43. (Original) A drive unit as in Claim 38, wherein said logic means includes:

overload means responsively coupled to said electric drive means for sensing an overload condition when a load exceeds the capacity of the lifting structure and for disabling said electric drive means when said overload condition is sensed.

44. (Original) A drive unit as in Claim 38, wherein said logic means includes:

delay means coupled to said electric drive means for delaying by a predetermined time interval application of said direction control signals that signal change of direction of the lifting structure to thereby allow the lifting structure to come to a halt before reversing d

45. (Original) A drive unit as in Claim 38, and further including:

limiting means for limiting the movement of the lifting structure to a predetermined upper level of travel and to a predetermined lower level of travel.